

Appl. No. 10/056,226
Reply to Office Action of December 3, 2003

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (previously presented) An electronic high intensity discharge lamp ballast, comprising: an inverter circuit and a resonant circuit, and wherein at least one ignition capacitor is provided between the resonant circuit and the lamp.
2. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 1 wherein two ignition capacitors are provided in parallel with each other, a first of said ignition capacitors being located physically proximate to said inverter circuit and said resonant circuit, and a second of said ignition capacitors being located proximate the lamp and separated from the first ignition capacitor by a cable.
3. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 1 wherein said inverter circuit comprises two switches and wherein means are provided for varying a switching frequency of said inverter circuit.
4. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 3 wherein said inverter circuit is operated at a low frequency during an ignition step and at a high frequency during steady state operation.
5. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 3 wherein means are provided for regulating the lamp power during steady state operation by varying the switching frequency of the inverter.

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6. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 5 wherein means are provided for monitoring lamp power by monitoring a dc link current, and wherein said switching frequency of said inverter is varied in response to an output from a current controller.
7. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 1 wherein means are provided whereby if ignition fails the ballast is disabled and a further attempt to ignite the lamp is made after a preset time interval.
8. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 7 wherein success or failure of ignition is detected by comparing a lamp current with a reference current, and wherein if ignition succeeds and the lamp current is higher than the reference current, the ballast is then operated at a high switching frequency.
9. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 7 wherein when an attempt to ignite the lamp is made an ignition voltage is generated for a relatively short duration only such that even if repeated attempts are made to ignite the lamp an rms lamp voltage remains below a preset value determined by safety considerations.
10. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 1 further comprising means for detecting a short-circuit or open circuit condition at said lamp.
11. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 10 wherein said short-circuit and open circuit detecting means comprises means for detecting when a dc link current falls below a reference value.

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12. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 10 wherein said short-circuit and open circuit detecting means is not activated during a lamp ignition step.
13. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 1 further comprising means for maintaining a lamp current at a level higher than a steady state level for a predetermined period of time following ignition to accelerate warming of a lamp plasma.
- 14 canceled
15. (presently amended) An electronic high intensity discharge lamp ballast as claimed in claim 14 16 wherein said short circuit or open circuit detecting means comprises means for detecting when a dc link current falls below a reference value.
16. (presently amended) An electronic high intensity discharge lamp ballast ~~as claimed in claim 14~~ with a nominally constant dc link voltage, comprising: an inverter circuit, a resonant circuit, and means for detecting a short circuit or open circuit condition at said lamp;
wherein delay means are provided whereby said short circuit or open circuit detecting means is not activated until a predetermined time after ignition of said lamp.
- 17-18 canceled
19. (presently amended) An electronic high intensity discharge lamp ballast ~~as claimed in claim 18~~ comprising: an inverter circuit, a resonant circuit, means for disabling the ballast in the event that the lamp fails to ignite in a start-up process, and means for making a further attempt to ignite the lamp after a predetermined interval;
wherein success or failure of ignition is detected by comparing a lamp current with a reference current, and wherein if ignition succeeds and the lamp current is higher than the reference current, the ballast is then operated at a high switching frequency.

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20. (presently amended) An electronic high intensity discharge lamp ballast ~~as claimed in claim 18~~ comprising: an inverter circuit, a resonant circuit, means for disabling the ballast in the event that the lamp fails to ignite in a start-up process, and means for making a further attempt to ignite the lamp after a predetermined interval;

wherein when an attempt to ignite the lamp is made an ignition voltage is generated for a relatively short duration only such that even if repeated attempts are made to ignite the lamp an rms lamp voltage remains below a preset level determined by safety conditions.

21. (previously presented) An electronic high intensity discharge lamp ballast as claimed in claim 1 wherein an ignition frequency of said inverter circuit is less than a steady-state frequency of said inverter circuit.

22. (currently amended) An electronic high intensity discharge lamp ballast as claimed in claim ~~14~~ 16 wherein an ignition frequency of said inverter circuit is less than a steady-state frequency of said inverter circuit.

23. (currently amended) An electronic high intensity discharge lamp ballast as claimed in claim ~~17~~ 19 wherein an ignition frequency of said inverter circuit is less than a steady-state frequency of said inverter circuit.

24. (currently amended) An electronic high intensity discharge lamp ballast as claimed in claim ~~18~~ 20 wherein an ignition frequency of said inverter circuit is less than a steady-state frequency of said inverter circuit.